REMARKS

Applicants respectfully request reconsideration of the above-identified patent application. Claims 1-49 and 51-55 are pending. Claim 50 has been cancelled with this Response. Claims 16, 48-49 and 51 are currently amended to more particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

I. Objections

Applicants note that the status of claim 16 is somewhat uncertain because it is not expressly rejected and is not listed on the cover sheet as being rejected. Regardless, the informalities the Examiner identified have been corrected. Applicant respectfully requests express acknowledgement that claim 16 would be allowable if rewritten in independent form.

Applicants thank the Examiner for his indication that claims 27-32 would be allowable if rewritten in independent form.

II. Summary of the Invention

As defined in independent claim 1, the present invention is directed to a contactless power supply for providing power to a remote device. The contactless power supply includes a resonant circuit, a receiver, and a controller. The resonant circuit has a variable resonant frequency and a primary winding for transferring power to the remote device. The receiver receives information from the remote device. The controller varies the variable resonant frequency in response to information received from the remote device.

As defined in independent claim 5, the present invention is directed to a contactless power supply for providing power to a remote device. The contactless power supply

includes an inverter, a resonant circuit, a power source and a controller. The inverter has a duty cycle and an operating frequency. The resonant circuit is coupled to the inverter and has a resonant frequency. The resonant circuit has a primary for transferring power to the remote device. The power source is coupled to the inverter and has a rail voltage. The controller varies the rail voltage, the resonant frequency or the duty cycle. The receiver receives power information from the remote device.

As defined in independent claim 15, the present invention is directed to a remote device capable of receiving power from a contactless power supply. The remote device includes a remote device controller and a secondary winding having a secondary winding variable impedance.

As defined in independent claim 23, the present invention is directed to a method of operating a contactless power supply supplying power to a plurality of remote devices, each of the remote devices having power usage information. The method includes receiving the power usage information for each of the remote devices and adapting the contactless power supply in response to the power usage information.

As defined in independent claim 33, the present invention is directed to a contactless power supply for providing power to a remote device. The contactless power supply includes a primary winding for transferring power to a remote device, a receiver for receiving power usage information from the remote device and a controller for changing a variable characteristic of the contactless power supply in response to the power usage information.

As defined in independent claim 39, the present invention is directed to a remote device for receiving power from a contactless power supply. The remote devices includes a wireless transmitter for sending power consumption information to the contactless power supply.

As defined in independent claim 43, the present invention is directed to a remote device capable of receiving power from a contactless power supply capable of being communicatively coupled to a second device by way of the contactless power supply. The remote device includes a variable inductor for receiving power from the contactless power supply and a transceiver for data communication with the contactless power supply.

As defined in independent claim 48, the present invention is directed to a contactless power supply. The contactless power supply includes an inductive power supply, a transceiver, a communication interface and a communication controller. The inductive power supply inductively energizes a plurality of remote devices and includes a tank circuit with a variable resonant frequency. The transceiver communicates data with the remote devices. The communication interface couples the contactless power supply with a second device. The communication controller manages communication between the second device and the remote devices.

II. Art Rejections

Applicants respectfully submit that the subject matter of the claims is patentable over the art of record.

A. §103(a) Obviousness Rejection Based on Baraban in view of Takasan

Claims 1-15, 17-26, 33-41 and 43-55 were rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 7,065,658 to Baraban and U.S. Patent 5,983,076 to Takasan.

Baraban is directed to a method and apparatus for synchronizing and recharging a connector-less portable computer system. The Baraban system discloses a hand-held computer system with an inductive charging system and a wireless communication system for water-tight portable computing. The inductive charging system is not the focus of the Baraban disclosure and is described in broad, generic terms, such as "electronic cradle" and "primary coil". Baraban teaches that the wireless communication system can be used to synchronize the portable computer system using GSM, CDMA, LAN, Blue Tooth, or Infrared Technology. When the PDA is placed within a cradle, wireless communications may be exchanged between the computer and the PDA. In addition, wireless power may be supplied to the PDA by a primary coil in the cradle.

Takasan is directed to an antenna unit for a communication system intended for use with conveyor systems in factories and warehouses. The Takasan antenna unit is used with a monorail-type conveyor used to convey parts from one workstation to another in a factory or warehouse. The conveyor includes a series of carriages that run along a conveyor rail. The carriages are configured to inductively receive power and communications. The system includes a grounding station that includes a modem having separate transmission and reception coils. Each carriage includes a modem having transmission and reception coils as well as a separate power supply coil for inductively receiving power.

With respect to independent claims 1 and 48, neither Baraban nor Takasan disclose a "circuit having a variable resonant frequency". The Examiner cited the following passage in support of his statement that Baraban discloses a "circuit having a variable resonant frequency":

> [T]he portable computer system may be a handheld device and includes a secondary coil of a transformer where the trasnformer's primary coil resides in an electronic cradle. The portable computer's rechargeable battery is recharged through an induction charging system. Baraban Col. 2 Lns. 33-36

Applicants respectfully disagree with the examiner's assertion. Neither of these references, including the cited passage, teach or suggest the concept of a circuit with a variable resonant frequency. In fact, neither reference even mentions the concept of a resonant frequency, let alone a variable resonant frequency.

It is well known that power transfer between a primary and a secondary is most efficient when they both operate at the same, or similar, resonant frequency. For this reason, most inductive charging systems predetermine a resonant frequency which is not variable. The resonant frequency is essentially "built into" the primary and secondary circuits. This is in stark contrast to the claimed subject matter which, for example, in claim 1 which recites a resonant circuit having a **variable** resonant frequency.

For further clarification, Applicants direct the Examiner to page 15 lines 12-16 of the specification which state that "[b]y varying the variable impedance, the resonant frequency of the tank circuit will be varied. The variable impedance element could be variable inductor 330

or variable capacitor 332, or both." Varying the resonant frequency is not taught or suggested anywhere in Baraban or Takasan.

With respect to independent claim 5, neither Baraban or Takasan disclose a controller for varying the rail voltage, the resonant frequency or the duty cycle as claimed. Just as there is no discussion of varying the resonant frequency, there is no discussion in either reference of varying the rail voltage or duty cycle either. In fact, the controller in Takasan specically states that a "predetermined frequency" is employed. Takasan, Col. 5 Ln. 67.

With respect to independent claims 15 and 43, neither Baraban nor Takasan disclose a remote device with a "secondary winding variable impedance" as claimed in independent claim 15; or a "variable inductor" as claimed in independent claim 43.

The Examiner cited the same passage as discussed above in support of his statement that Baraban discloses a "secondary winding variable impedance". In addition, the Examiner cited a passage including a general description of a PDA including its ability to synchronize with a computer. Nothing cited by the examiner or in any of the art of record teaches or suggests a remote device with a secondary winding variable impedance or a variable inductor.

Neither Baraban nor Takasan disclose "adapting the contactless power supply in response to power usage information" as claimed in independent claim 23; "a controller for changing a variable characteristic of the contactless power supply in response to the power usage information" as claimed in independent claim 33; or "a wireless transmitter for sending power consumption information to the contactless power supply" as claimed in independent claim 39.

Takasan uses a controller to supply power to carriages. The power supply unit does convert signals to an alternating current of a predetermined frequency. The Takasan power supply unit also filters the received alternating current to extract the signal frequency component that has been superimposed on the alternating current. There is no explanation of what is done with this signal in Takasan. Regardless, there is no indication that this signal, or any of the other signals in Takasan or Baraban for that matter, contains power usage information.

Accordingly, for at least the reasons noted above, Applicants respectfully submit that the obviousness rejection based on Baraban or Takasan either alone or in combination is unfounded or overcome, and therefore should be withdrawn.

B. §102(e) Anticipation Rejection Based on Baraban

Claims 39-41 and possibly claim 42 were rejected under 35 U.S.C. 102(e) as being anticipated by Baraban. As discussed above, Baraban does not teach or suggest "sending power consumption information to the contactless power supply" from a remote device. Accordingly, Applicants respectfully submit that the anticipation rejection is unfounded or overcome, and therefore should be withdrawn.

Applicants note that the status of claim 42 is somewhat uncertain, because it is not specifically rejected. However, it appears that the Examiner intended to reject claim 42 with claims 39-41, but simply forgot to recite the specific rejection.

C. Dependent Claims

The dependent claims recite additional subject matter not present in the corresponding independent claims, these dependent claims are even more clearly allowable over the art of record than the corresponding independent claims.

IV. Conclusion

In view of the above amendments and remarks, it is respectfully submitted that the present application is in condition for allowance. A notice to that effect is earnestly and respectfully requested.

Respectfully submitted,

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